

REMARKS

Claims 1-7, all the claims pending in the application, stand rejected.

Claim Rejections - 35 U.S.C. § 102

Claims 1 and 5-7 are rejected under 35 U.S.C. § 102(b) as being anticipated by Asao et al (6,462,453). This rejection is traversed for at least the following reasons.

In defining the background for the present invention, the present application identifies a problem with the prior art, as represented by two Japanese applications, that specifically involves the thick deposit of electrically insulating resin between shielding plates (or the cap) and joint portions in the structure of a stator for an automotive alternator. Due to this thick deposit, heat generated in the joint portions cannot dissipate efficiently. Moreover, the positioning of the shielding plates (or a cap) becomes difficult, thereby raising the risk that contact may occur with the internal components of the alternator if the shielding plates or the cap are misaligned.

The invention solves these problems with the structure as illustrated in Figs. 1-10, particularly Figs. 4, 6 and 7.

The Examiner asserts that Asao et al teaches a case 1, a rotor 7, stator (Fig. 1), comprising a core 15 having slot 15a and a winding 30, as well as a cooling means 5. Further, the Examiner asserts that Asao teaches an arrangement of the stator winding 16 to have winding subportions 30a, each formed in a U-shape by a strand of wire 30 and being installed in slots and formed into a wave-shaped pattern in which straight portions are linked near axial end surfaces of the stator core by return portions, and wherein coil end groups are constructed by arranging the return portions in a circumferential direction. In addition, the Examiner asserts that Asao et al teaches the arrangement of the stator winding into a polyphase alternating-current winding.

However, the Examiner's analysis is in error as it assumes the existence of teachings that are not supported by Asao's disclosure. First, each stator winding 16 described in embodiments 1 to 5 of Asao et al. is composed of a plurality of winding sub-portions each formed by joining free end portions of U-shaped coil segments 30 each other. However, Asao et al. does not teach how to join the winding sub-portions to form a polyphase alternating-current winding.

Asao et al teaches the formation of joint portions 31, as shown in Fig. 3 of the patent, However, joint portions 31 are formed by joining the free end portions of the coil segments 30. Namely, the joint portions 31 do not correspond to the ancillary connection portions constituted by joint portions between end portions of the winding sub-portions, as recited in claim 1.

Further, in Asao et al. resin portions 35 are applied and formed on the joint portions 31 to prevent the joint portions 31 from being exposed. Therefore, Asao et al. does not teach or suggest anything about preventing the conductors constituting the ancillary connection portions from being exposed.

Second, a stator winding 51 described in embodiment 6 of Asao et al., is composed of a plurality of winding sub-portions 41 to 44 each constructed by a continuous wire 40. A polyphase alternating-current winding is formed by connecting together the end portions 41a, 41b, 42a, 42b, 43a, 43b, 44a and 44b of the winding sub-portions 41 to 42, based on the connection method shown in Fig. 10. However, Asao et al. does not teach or suggest anything about the preventing conductors constituting the ancillary connection portions from being exposed.

Third, the Examiner asserts that the resin portions 35 correspond to covers recited in claim 1. Though the resin portions 35 are applied and formed so as to cover the joint portions, 31, the joint portions 31 do not correspond to the ancillary connection portions. Therefore, the resin portions 35 do not correspond to a cover fitted onto the ancillary connection portions, as recited in claim 1.

Indeed, the claimed covers correspond to the covers 27 in Fig. 1, which are fitted onto each of ancillary connection portions 39, constituted by joint portions 31 between the end portions of the plurality of winding subportions 32-37 so as to closely fit onto an inner circumferential surface, an axial end surface and an outer circumferential surface of each of the ancillary connecting portions 39, respectively. Claim 1 specifically requires the covers to be filled with a first electrically insulating resin 28.

Notably, the covers are described at pages 19-21 of the application as having internal surface shapes which closely contact the external surfaces of the ancillary connection portions

39. The covers are preferably made of glass-reinforced epoxy resin, providing heat tolerance and promoting heat dissipation. The covers are adapted to have high workability when applying the silicon resin 28 and a varnish 29 and the appearance of protrusions is reduced, enabling uniformity and high quality. Clearly, the covers are separate and discrete structures that are made beforehand.

As is clear from the disclosure in Asao that relates to Fig. 3, the reference number 35 refers to “electrically-insulating resin portions having as their main component an epoxy resin.” These portions are applied to cover the joint portions 35 joining the free ends 30c of the coil segment 30, including melted portions 31 and portions of the free ends 30c, from which the insulation coating has been stripped. Further attesting to the fact that these are not separate and discrete cover elements, Asao teaches at col. 7, lines 36-45 that the insulating resin portions 35 are applied “so as to fill spaces as three between radially adjacent joint portions 34 joining the free ends 30c together.” Further, as explained at col. 7, line 58, describing the application of the resin portions 35, Asao et al teaches that the film thickness of the resin portions on the surfaces of the joint portions 34 and to fill the spaces between the joint portions, the resin is applied at a predetermined viscosity. Specifically, “the electrically-insulating resin portions 35 used have as their main component an epoxy resin having a predetermined viscosity such that the electrically-insulating resin does not spread or adhere to portions of the coil segments 30 other than the joint portions while drying or setting.” The method of applying the resin portions is explained with regard to Fig. 4 and clearly indicates that the resin portions 35 are applied by spray painting.

According to the understanding of anyone skilled in the art, these are not “covers” as claimed. Moreover, even if the Examiner asserts that a spray coating 35 is a “cover”, interpretation is inconsistent with the covers being “filled with a first electrically insulating resin” as claimed. This limitation clearly requires two separate structures while in Asao et al, there is only a single coating structure. One of ordinary skill in the art, given the claim its broadest reasonable interpretation, would conclude that the spray paint coating of Asao et al is not a “cover” as claimed. Moreover, such coating cannot attain the advantages set forth in the specification as previously described. Thus, for at least this one reason, the claim clearly defines subject matter patentable over Asao and other items of prior art.

Finally, claims 5-7, which depend from claim 1, also would be patentable.

Claim Rejections - 35 U.S.C. § 103

Claims 2-4 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Asao et al in view of Tono et al (JP 2001-245454). The Tono et al reference was previously cited by the Applicant in an Information Disclosure Statement. This rejection is traversed for at least the following reasons.

Claims 2-4 depend from claim 1 and would be patentable for the reasons given already with regard to the distinctions over Asao et al.

The Tono et al reference does not remedy these deficiencies, as it does not teach a cover, or the step of substituting a separate cover for the spray paint coating of Asao et al. Indeed, the Examiner merely cites Tono et al for a teaching of a second electrically-insulating resin for the purpose of preventing oxidation, as shown in Fig. 3 with regard to element 101. This citation clearly has no relationship to the use of a cover, as claimed. Moreover, the cover creates additional challenges and requirements that, when combined with the additional limitations in the dependent claims, create separate and distinct bases for patentability.

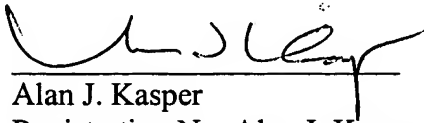
Thus, on the basis of the foregoing analysis, the claim rejections are traversed without amendment to the claims.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

Response Under 37 C.F.R. § 1.111
Application No. 10/726,607

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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